REMARKS

This responds to the Office Action dated July 18, 2006. No claims are amended, no claims are canceled, and no claims are added. Thus, claims 1-52 remain pending in this application.

Double Patenting Rejection

Claims 18, 19 and 23-30 were rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 10-17 of U.S. Patent No. 6,641,541. Applicant traverses, and respectfully requests withdrawal of the rejection in light of the application being a divisional application of the referenced patent.

§101 Rejection of the Claims

Claims 1-52 were rejected under 35 U.S.C. § 101. Applicant respectfully traverses. Applicant submits the filtering of input signals produces a useful, tangible and concrete result. The specification of the application indicates "any one of a variety of signals that is characterized by a continuous stream or train, has impulse-like spikes, and where it is of interest to adaptively preserve signal morphology while removing noise can benefit from the smoothing scheme of the present invention." (Application, p. 7 lines, 4-7). Additionally, the specification indicates "the smoothing scheme can be used to facilitate identification and/or monitoring morphology devices or methods by functioning, for example, as a preprocessing stage for morphology-dependent schemes. (Application, p. 14, lines 6-9)

According to the MPEP, the claim meets the statutory requirement of 35 U.S.C. 101 where a claim provides a transformation or reduction of an article to a different state. (MPEP 2406 IV.C.2.(B)(1)). Applicant submits the smoothing scheme transforms the input signal, and reduces the signal to another state, maintaining the morphology of the input signal.

With respect to independent claims 1, 18 and 34 "a useful, tangible and concrete result" is the generation of a smoothed, transformed version of an input signal, which substantially preserves the morphology of the input signal. (MPEP, 2406 II.A.) With respect to independent claims 17, 51 and 52, Applicant submits the claims produce a useful, tangible and concrete result. (e.g. adaptively removing noise from an input signal in the generation of an output signal

representative of the input signal). One skilled in the art would recognize the usefulness of the transformed and filtered output signals, generated by the systems and methods claimed, in identifying information within the input signals that may not have otherwise been apparent.

The dependent claims are believed to be in condition for allowance for at least the reasons asserted with respect to their independent base claims. Applicant respectfully requests withdrawal of the §101 rejection, and reconsideration and allowance of the claims.

§*102 Rejection of the Claims*

Claims 1, 4-6, 17-19, 32, 33 and 51 were rejected under 35 U.S.C. § 102(b) as being anticipated by Ota (U.S. Patent No. 4,120,229). Applicant respectfully traverses.

The Ota reference illustrates a modified phase lock loop circuit (Ota, 3 in FIG. 4) which generates an error signal indicating the phase ratio between a selected frequency and an input signal. (Ota, col 4., lines 24-52). Applicant notes the reference, as illustrated in FIG. 4, shows a VCO and shaping circuit connected between the output of a set of filters and one input of a set of phase comparators. The phase comparators are also connected to the input signal to provide a phase comparison of the input signal to a selected shaped output of a VCO. (Ota, 27 in FIG. 2).

With respect to independent claim 1, Applicant is unable to find, among other things, in Ota, a method including comparing the plurality of filtered signal portions to the portion of the input signal to generate a plurality of deviations. Additionally, Applicant is unable to find in Ota a method including comparing one or more of the plurality of deviations to a maximum deviation limitation to select one of the plurality of filtered signal portions, the selected one filtered signal portion having a deviation less than the maximum deviation limitation. Furthermore, Applicant is unable to find in Ota a method including generating an output signal representative of a smoothed version of the input signal from a combination of a plurality of successive selected one filtered signal portions which substantially preserve morphology of the input signal.

With respect to independent claim 17, Applicant is unable to find, among other things, in Ota, a method including determining a desired filtering level from a number of filtering levels for each of the discrete samples of the input signal. Additionally, Applicant is unable to find in Ota a method including determining a desired smoothed signal from a number of smoothed signals

corresponding to the desired filtering level, wherein the desired smoothed signal is calculated from a selection of equations including:

$$y_0(n) = x(n),$$

$$y_1(n) = \frac{1}{2} \sum_{m=-1}^{0} x(n+m),$$

$$y_2(n) = \frac{1}{4} \sum_{m=-2}^{1} x(n+m),$$

$$y_3(n) = \frac{1}{8} \sum_{m=-4}^{3} x(n+m), \quad \text{and}$$

$$y_4(n) = \frac{1}{16} \sum_{m=-8}^{7} x(n+m).$$

With respect to independent claim 18, Applicant is unable to find, among other things, in Ota, a system including a processor to produce a plurality of filtered signal portions of varying smoothness from the portion of the input signal. Additionally, Applicant is unable to find in Ota, among other things, a system including a processor to determine a plurality of deviations between the plurality of filtered signal portions and the portion of the input signal. Also, Applicant is unable to find in Ota, among other things, a system including a processor to compare one or more of the plurality of deviations to a maximum deviation limitation to select one of the plurality of filtered signal portions, the selected one filtered signal portion having a deviation less than the maximum deviation limitation. Furthermore, Applicant is unable to find in Ota, among other things, a system including a processor to generate an output signal representative of a smoothed version of the input signal from a combination of a plurality of successive selected one filtered signal portions which substantially preserve morphology of the input signal.

With respect to independent claim 51, Applicant is unable to find, among other things, in Ota, a system including a processor to receive the input signal and generate an output signal representative of a filtered version of the input signal by adaptively removing noise components from the input signal, wherein: the input signal includes a number of discrete samples; the

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processor is configured to determine a desired filtering level for each of the discrete samples of the input signal; the processor is configured to determine a desired smoothed signal from a number of smoothed signals corresponding to the desired filtering level; and the desired smoothed signal is calculated from a selection of equations including:

$$y_0(n) = x(n),$$

$$y_1(n) = \frac{1}{2} \sum_{m=-1}^{0} x(n+m),$$

$$y_2(n) = \frac{1}{4} \sum_{m=-2}^{1} x(n+m),$$

$$y_3(n) = \frac{1}{8} \sum_{m=-4}^{3} x(n+m), \quad \text{and}$$

$$y_4(n) = \frac{1}{16} \sum_{m=-8}^{7} x(n+m).$$

The dependent claims are believed to be in condition for allowance for at least the reasons asserted with respect to their independent base claims. Applicant respectfully requests withdrawal of the §102 rejection, and reconsideration and allowance of the claims.

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CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (612) 373-6960 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.
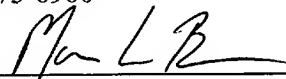
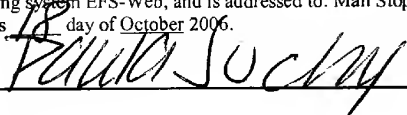Respectfully submitted,

ERIC G. LOVETT ET AL.

By their Representatives,

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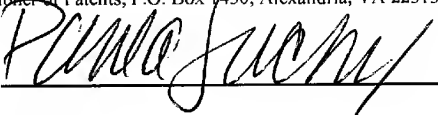P.O. Box 2938
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